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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,704	05/27/2005	Nobuyoshi Takeuchi	92478-3200	9263

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EXAMINER	
WALFORD, NATALIE K	

ART UNIT	PAPER NUMBER
2879	

MAIL DATE	DELIVERY MODE
09/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/536,704	TAKEUCHI ET AL.	
	Examiner	Art Unit	
	NATALIE K. WALFORD	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,6,8 and 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,6,8 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 May 2005 and 22 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 2, 2008 has been entered.

Response to Amendment

The Amendment, filed on April 2, 2008, has been entered and acknowledged by the Examiner. Claims 1, 3, 5-6, and 8-9 are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 5-6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keijser et al. (US 6,300,729) in view of Oda et al. (US 4,214,666).

Regarding claim 1, Keijser discloses a metal halide lamp in figures 1 and 2 comprising an arc tube (item 1) that includes: a pair of electrode structures, each of which has an electrode (items 4 and 5) at a tip (items 4b and 5b); a main tube part (item 3) made of ceramic (column 3,

lines 7-9), and containing a discharge space (item 11) in which the electrodes of the electrode structures are located to oppose each other; and a pair of thin tube parts (items 34 and 35) that connect from the main tube part and are sealed by respective sealing members (item 10) with the electrode structures inserted therein, wherein $20 \leq WL \leq 50$ and $EL/Di \geq 2.0$ are satisfied (column 4, lines 41-43), where tube wall loading of the arc tube is WL(W/cm2), a distance between the electrodes is EL(mm), an inner diameter of the main tube part is Di(mm), but does not expressly disclose that the ceramic is sintered polycrystalline alumina having magnesium oxide of 200 ppm or below and that $0.5 \leq G \leq 1.5$ is satisfied, where an average crystal grain diameter of the polycrystalline alumina ceramic is G(μm), as claimed by Applicant. Oda is cited to show a lamp with a ceramic body that has an average crystal grain diameter of sintered alumina of 1 μm and contains magnesium oxide with 200 ppm or less (column 2, lines 1-13). Oda teaches that the lamp has excellent light transmission properties and flexural strength (column 3, lines 19-41).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Keijser's invention to include the ceramic is polycrystalline alumina having magnesium oxide of 200 ppm or below and that $0.5 \leq G \leq 1.5$ is satisfied, where a crystal grain diameter of the polycrystalline alumina ceramic is G(μm) as suggested by Oda for having excellent light transmission properties and flexural strength.

Regarding claim 3, the combined reference of Keijser and Oda disclose the metal halide lamp of Claim 1, wherein the inner diameter Di(mm) of the main tube part satisfies $2.0 \leq Di \leq 10.0$ (Keijser; column 4, lines 41-42).

Regarding claim 5, the combined reference of Keijser and Oda disclose the metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more (Oda; see Table 1).

Regarding claim 6, Keijser discloses a metal halide lamp in figures 1 and 2 comprising an arc tube (item 1) that includes: a pair of electrode structures, each of which has an electrode (items 4 and 5) at a tip (items 4b and 5b); a main tube part (item 3) made ceramic (column 3, lines 7-9), and containing a discharge space (item 11) in which the electrodes of the electrode structures are located to oppose each other; and a pair of thin tube parts (items 34 and 35) that connect from the main tube part and are sealed by respective sealing members (item 10) with the electrode structures inserted therein, wherein $20 \leq WL \leq 50$ and $EL/Di \geq 2.0$ are satisfied (column 4, lines 41-43), where tube wall loading of the arc tube is WL(W/cm2), a distance between the electrodes is EL(mm), an inner diameter of the main tube part is Di(mm), but does not expressly disclose that the ceramic is sintered polycrystalline alumina having magnesium oxide in a range of 1 ppm to 200 ppm and $0.5 \leq G \leq 1.5$ is satisfied, where an average crystal grain diameter of the polycrystalline alumina ceramic is G(μm), as claimed by Applicant. Oda is cited to show a lamp with a ceramic body that has an average crystal grain diameter of sintered alumina of 1 μm and contains magnesium oxide with 200 ppm or less (column 2, lines 1-13). Oda teaches that the lamp has excellent light transmission properties and flexural strength (column 3, lines 19-41).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Keijser's invention to include the ceramic is polycrystalline alumina having magnesium oxide of 200 ppm or below and that $0.5 \leq G \leq 1.5$ is satisfied, where a

crystal grain diameter of the polycrystalline alumina ceramic is G(μm) as suggested by Oda for having excellent light transmission properties and flexural strength.

Regarding claim 8, the combined reference of Keijser and Oda disclose the metal halide lamp of Claim 6, wherein the inner diameter Di(mm) of the main tube part satisfies $2.0 \leq Di \leq 10.0$ (Keijser; column 4, lines 41-42).

Regarding claim 9, the combined reference of Keijser and Oda disclose the metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more (Oda; see Table 1).

Response to Arguments

Applicant's arguments filed April 2, 2008 have been fully considered but they are not persuasive. The Examiner respectfully disagrees with Applicant's arguments. The Examiner first notes that the method of manufacturing of polycrystalline alumina is not germane to the issue of patentability. Oda discloses that the alumina is sintered and has the correct average grain diameter. The sintering process is not germane. Hence, the Applicant's limitations are met as set forth.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Natalie K Walford/
Examiner, Art Unit 2879

/Sikha Roy/
Primary Examiner, Art Unit 2879